SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-48

Name: Lake Molstad **County:** Walworth
Legal Description: T124N-R78W-Sec. 8 & 17 **GPS:** 45°33'55.73"N 99°36'53.45"W
Location from nearest town: 6 miles east and 1 ½ miles north of Mobridge

Date of present survey: June 22-24, 2015 (netting); October 6, 2015 (electrofishing)
Date of last survey: June 11-13, 2012 (netting); October 23, 2012 (electrofishing)
Most recent lake management plan: F-21-R-40 (January 1, 2008 to December 31, 2012)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Black Bullhead
Yellow Perch	Northern Pike
Bluegill	Fathead Minnow

PHYSICAL DATA

Surface Area: 100 acres **Watershed:** 13,600 acres
Maximum Depth: 19.5 feet **Mean Depth:** 8 feet
Lake elevation at time of survey (field observations): Full
Contour map: No **Date:** N/A

Ownership of lake and adjacent lakeshore properties:

Lake Molstad is a 100-acre artificial impoundment just north and east of the City of Mobridge in northwest Walworth County. The lake was named for Knut T Molstad, one of the original owners of the property on which the dam is located. The lake was created in 1938 with the construction of an earthen dam on Blue Blanket Creek by the Works Progress Administration (WPA). To allow for the construction of the dam and flooding of approximately 100 acres of land, public use easements were granted to the State of South Dakota for the lake, a 12-foot strip of land above the high water contour, and a 66-foot right-of-way from a county road. The Wildlife Division of the South Dakota Department of Game, Fish and Parks completes fish management activities.

Watershed condition with percentages of land use types:

The watershed of Lake Molstad is approximately 13,600 acres or 21.2 square miles mainly located to the north of the dam and is comprised primarily of privately owned agricultural land and grassland. Land use in the watershed is 60% cultivated agricultural land utilized for row crops and small grains. The remainder is 35% native grasses used as pasture, hay land, and land in the conservation reserve program, and 5% residences, farmsteads, tree belts and roads. The immediate shoreline of Lake Molstad is cultivated crop land and a wooded area.

Fishing access:

The west shore of the lake has a new single boat ramp. Shore fishing access is found around most of the lake's shoreline, but is limited during the summer months by submergent and emergent vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The access road is in good condition. The boat ramp is new and the spillway is fairly new and in good condition.

Field observations of aquatic vegetation condition:

Lake Molstad's shoreline is surrounded by emergent vegetation consisting of mainly bulrushes and cattails. Submergent vegetation is found throughout 65% of the lake and is extremely thick in shallow areas and consists of a variety of pondweed species.

CHEMICAL DATA

Field observations of water quality and pollution problems:

Some siltation problems have been noted in past surveys and are still present in this survey. No other pollution problems were evident at the time of the surveys. Water clarity is good with a secchi disc reading of 3.5 feet. Other water quality characteristics were measured in the field on June 22 2015, using a HACH water quality kit and a Hanna multiparameter meter. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Lake Molstad, Walworth County, June 22, 2015.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/L)	HRD (mg/L)	pH	Cond. (µS/cm)	TDS (ppm)	Sal.	ORP	Secchi (ft)
A	Surface	73.25	5.04	40.8	333	623	8.64	2150	1079	1.11	-206.9	3.5
A	17.1	67.15	2.21	87.4	392	699	8.31	2515	1257	1.30	-248.7	

BIOLOGICAL DATA

Methods:

Molstad Lake was sampled on June 22-24, 2015, with ten overnight trap net sets. The trap nets have 3ft x 5ft frames, 60ft leads, and ¾ inch knotted mesh. No experimental gill nets were set. On the evening of October 6, 2015, Molstad Lake was electrofished for 60 minutes (6-ten minute transects) to sample the largemouth bass population. The boat was set up with 120 pulses per second DC current at 170 volts with around 30-31 amps to electrofish the lake that had a conductivity of 2308µS/cm with a water temperature of 60.5°F. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Table 2. Total catch of ten, overnight ¾-inch frame nets at Lake Molstad, Walworth County, June 22-24, 2015.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	224	49.4	22.4	± 19.8	2.4	67	67	122
Bluegill	145	32.0	14.5	± 6.9	0.4	91	11	129
Yellow Perch	84	18.6	8.4	± 3.7	2.0	90	18	98

* Seven year mean (1995, 1997, 2000, 2002, 2004, 2010, 2012, renovated in 1992)

Electrofishing Catch

Table 3. Total catch from six ten-minute runs of fall nighttime electrofishing on Lake Molstad, Walworth County, October 6, 2015.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	2,028	100	2,028	± 431.3	125.2	31	7	106

* Six years (1995, 2000, 2002, 2004, 2010, 2012, renovated in 1992)

Largemouth Bass

The largemouth bass population in Lake Molstad continues to grow. The fall electrofishing CPUE of 2028.0 fish per hour is well above the 135 from the 2012 survey (Table 8) as well as the 125.2 six year mean (Table 3). The trap net CPUE of 22.4 is also above the 15.5 from the 2012 survey (Table 8) as well as the 2.4 seven year mean (Table 2). This population is now made up of several year classes although the population is dominated by 2 year classes. Figures 1 through 3 illustrate the length frequency histogram for the fish sampled the last three surveys. Growth is good with means right on to slightly above statewide, regional and SLI means (Table 4). Condition is good with a mean Wr of 106. Molstad has a very good predator base to keep the other species in line as well as being able to provide a source for stockings in other public waters.

Table 4. Average back-calculated lengths (mm) for each age class of largemouth bass sampled from Lake Molstad, Walworth County, 2015.

			Back-calculated Age						
Year Class	Age	N	1	2	3	4	5	6	7
2014	1	172	108						
2013	2	80	113	237					
2012	3	27	118	235	273				
2011	4	5	103	215	254	276			
2010	5	7	103	237	302	376	412		
2009	6	1	68	207	266	307	349	411	
2008	7	1	79	253	292	323	352	[illegible]	441
All Classes		**293**	**99**	**231**	**277**	**320**	**371**	**404**	**441**
Statewide Mean			96	182	250	305	342		
Region II Mean			105	183	246	296	328		
SLI* Mean			99	183	246	299	332		

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for largemouth bass sampled by electrofishing from Lake Molstad, Walworth County, 2015.

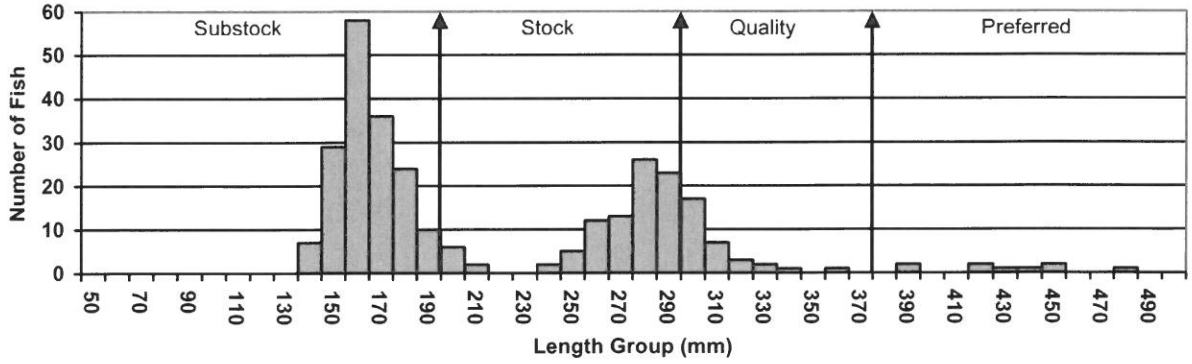


Figure 2. Length frequency histogram for largemouth bass sampled by electrofishing from Lake Molstad, Walworth County, 2012.

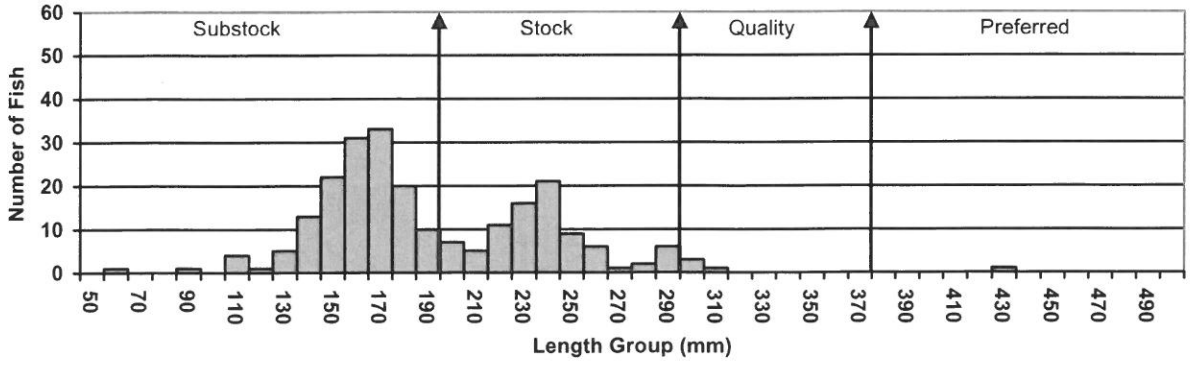
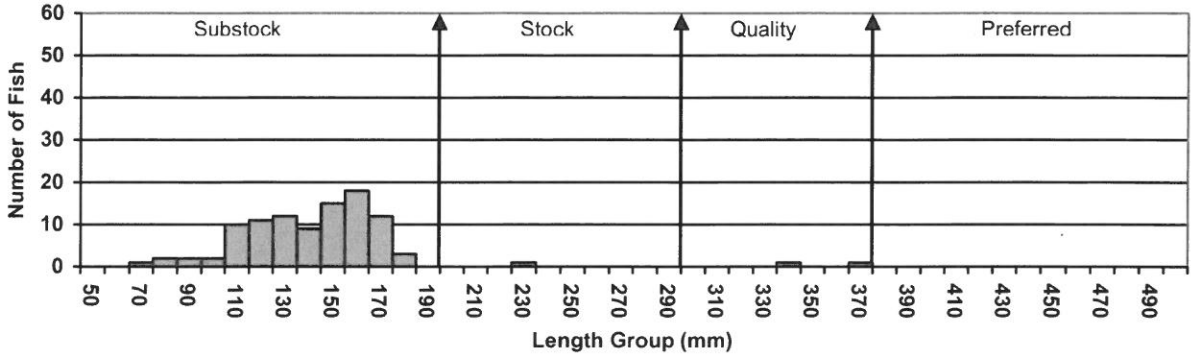


Figure 3. Length frequency histogram for largemouth bass sampled by electrofishing from Lake Molstad, Walworth County, 2010.



Yellow Perch

Molstad Lake continues to contain a quality yellow perch population. The CPUE of 8.4 is above the 3.2 from the 2012 survey (Table 8) as well as the 2.0 seven year mean (Table 2). Figures 4 through 6 illustrate the length frequency histograms for the fish sampled the last three surveys. The high density bass population is keeping the perch population down to about the right levels to allow for fish to reach desirable sizes to anglers. Anglers are even utilizing this population enough that it was recommended to do an additional perch stocking this past fall to boost the population. Growth is good with means right on to slightly above statewide, regional and SLI means (Table 5). Condition is good with a mean Wr of 98.

Table 5. Average back-calculated lengths (mm) for each age class of yellow perch sampled from Lake Molstad, Walworth County, 2015.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2013	2	71	122	202				
2012	3	5	105	200	240			
2011	4	4	107	194	247	271		
2010	5	2	91	164	215	254	274	
2009	6	2	90	173	236	270	291	305
All Classes		**84**	**103**	**187**	**235**	**265**	**282**	**305**
Statewide Mean			86	145	190	220	242	
Region II Mean			91	152	196	219	242	
SLI* Mean			87	142	185	205	219	

* Small Lakes and Impoundments

Figure 4. Length frequency histogram for yellow perch sampled by electrofishing from Lake Molstad, Walworth County, 2015.

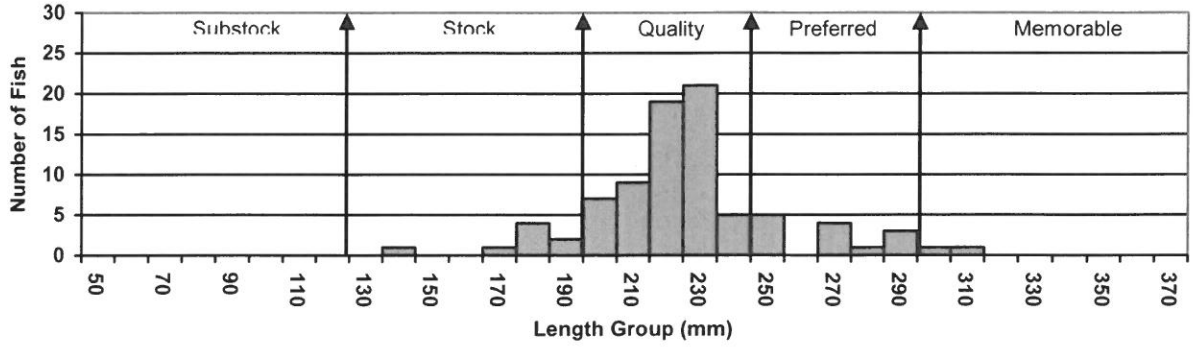


Figure 5. Length frequency histogram for yellow perch sampled by electrofishing from Lake Molstad, Walworth County, 2012.

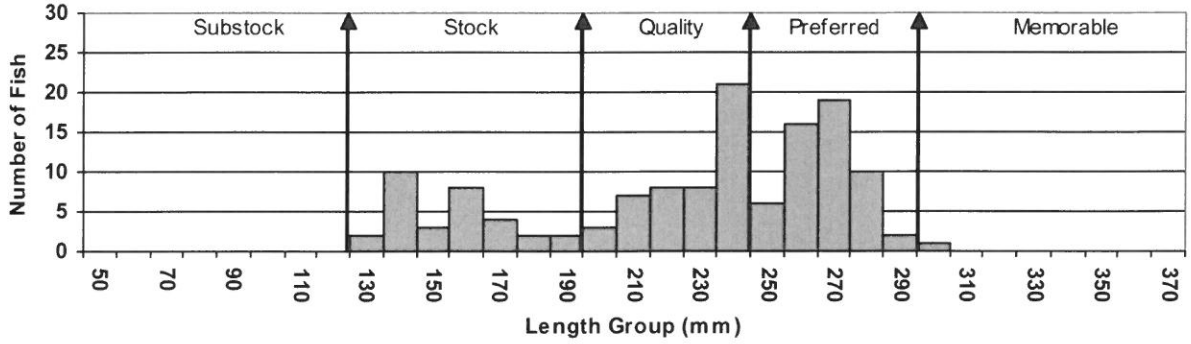
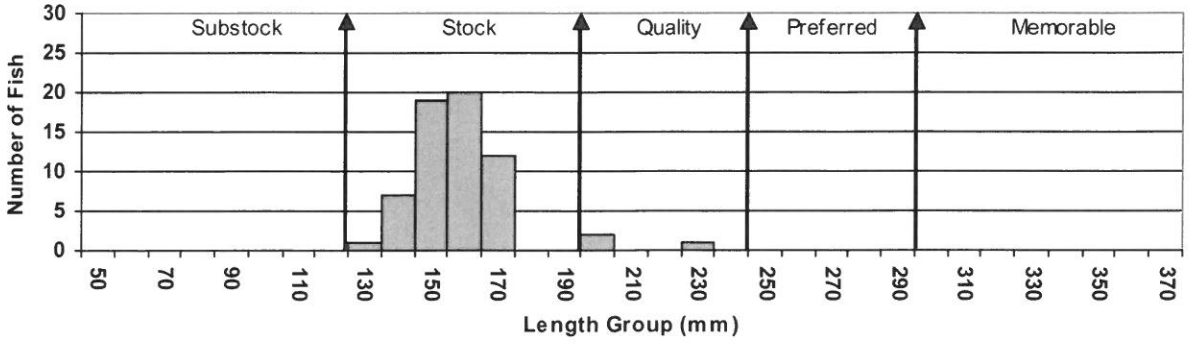


Figure 6. Length frequency histogram for yellow perch sampled by electrofishing from Lake Molstad, Walworth County, 2010.



Bluegill

The bass population in Molstad Lake has been established long enough with good catch per effort that is was decided to start a bluegill population a couple years ago. It appears that they have taken as the CPUE is 14.5 (Table 2). Most of these fish sampled would have been from the adult stocking done in 2014 (Table 7). Figure 7 illustrates the length frequency histogram for the fish sampled this survey. Growth is good with means right on with statewide, regional and SLI means (Table 6). Condition is also good with a mean Wr of 129. This appears to a good addition to Molstad Lake that will give anglers another species to target.

Table 6. Average back-calculated lengths (mm) for each age class of bluegill sampled from Lake Molstad, Walworth County, 2015.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2014	1	2	75					
2013	2	15	47	131				
2012	3	62	58	151	168			
2011	4	11	41	121	166	189		
2010	5	8	35	110	154	178	189	
2009	6	1	38	126	161	166	184	190
All Classes		**99**	**49**	**128**	**162**	**178**	**187**	**190**
Statewide Mean			55	103	141	166	180	
Region II Mean			52	97	134	164	180	
SLI* Mean			53	101	138	163	180	

* Small Lakes and Impoundments

Figure 7. Length frequency histogram for bluegill sampled by electrofishing from Lake Molstad, Walworth County, 2015.

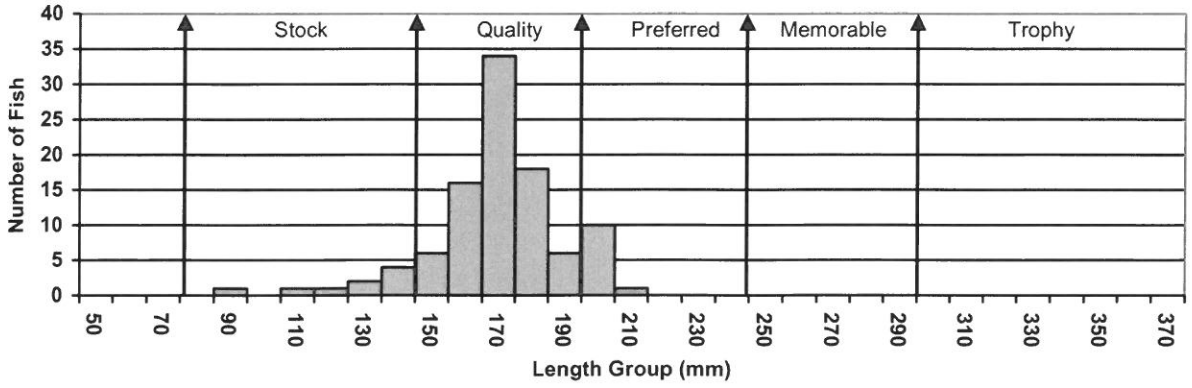


Table 7. Stocking records from the renovation in 1992 to the present for Lake Molstad, Walworth County.

Year	Number	Species	Size
1992	1,400	Yellow Perch	Fingerling
1993	385	Largemouth Bass	Adult
1993	10,340	Largemouth Bass	Medium Fingerling
1994	300	Largemouth Bass	Juvenile
1994	10,000	Largemouth Bass	Fingerling
1995	200	Yellow Perch	Adult
1995	2,500	Yellow Perch	Fingerling
2001	325	Bluegill	Adult
2003	400	Yellow Perch	Juvenile
2009	550	Yellow Perch	Adult
2009	600	Yellow Perch	Juvenile
2009	25	Largemouth Bass	Adult
2009	228	Largemouth Bass	Juvenile
2009	10,080	Largemouth Bass	Fingerling
2011	430	Yellow Perch	Adult
2012	300	Yellow Perch	Adult
2014	150	Bluegill	Adult
2015	150	Bluegill	Adult
2015	3,240	Yellow Perch	Fingerling

RECOMMENDATIONS

1. Resurvey in 2018 to monitor the fish populations.

2. Stock additional yellow perch as necessary to get the population established and reaching the management objectives.

3. Continue to stock bluegills as necessary to reach management objectives.

Table 8. Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled in Lake Molstad since the renovation in 1992.

Species	1995	1997	2000	2002	2004	2010	2012	2015
BLB (GN)	--	35.0	5.5	--	--	--	--	--
BLB (TN)	87.3	3.6	9.8	2.7	0.6	--	--	--
YEP (GN)	--	20.0	23.5	--	--	--	61.5	--
YEP (TN)	0.5	1.4	2.3	0.5	--	6.2	3.2	8.4
LMB (EF)	20.6	--	88.8	49.0	112.5	345.0	135.0	2028.0
LMB (GN)	--	--	3.5	--	--	--	41.5	--
LMB (TN)	0.4	0.5	0.1	0.1	0.5	--	15.5	22.4
NOP (GN)	--	--	2.0	--	--	--	--	--
NOP (TN)	--	--	0.1	1.5	0.6	--	--	--
BLG (GN)	--	--	--	--	--	--	--	--
BLG (TN)	--	--	--	2.8	--	--	0.1	14.5
SMB (EF)	2.6	--	--	--	--	--	--	--

BLB – Black bullhead, YEP – Yellow perch, LMB – Largemouth bass, NOP – Northern pike, BLG – Bluegill, SMB – Smallmouth bass